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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,300	04/14/2005	Joel Bigman	29282	7871

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EXAMINER	
CHOI, WILLIAM C	

ART UNIT	PAPER NUMBER
2873	

DATE MAILED: 10/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/531,300	BIGMAN, JOEL	
	Examiner	Art Unit	
	William C. Choi	2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,6-14,19-28,74,76,92,94 and 109* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *74,76,92,94 and 109* is/are allowed.

6)☒ Claim(s) *6 and 7* is/are rejected.

7)☒ Claim(s) *1,2,4,8-14 and 19-28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *0506*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

The indicated allowability of claims 6 and 7 is withdrawn in view of the respective newly discovered reference(s) to Demiryont (U.S. 5,138,481) and De Vries (U.S. 6,091,184 A). Rejections based on the newly cited reference(s) follow.

Claim Objections

Claims 1 (and dependent claims 2, 9-14 and 19-28) and 4 are objected to because of the following informalities: in lines 13 and 11 in respective claims 1 and 4, "layers" should be changed to "**layer**". The dependent claims inherit the objection form their parent claim. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Demiryont.

In regard to claim 6, Demiryont discloses an optical device (column 5, line 55 – column 6, line 38, Figures 2 & 3), comprising: a first conductive layer (column 5, lines 58-59, Figures 2 & 3, "38"); an optical layer, arranged over said first conductive layer,

said optical layer being transparent to at least a wavelength of interest and having an index of refraction, which is a function of a variable, substantially reversible, dopant concentration in said optical layer (column 5, line 60, Figures 2 & 3, "40"); and a second conductive layer, arranged over a portion of said optical layer, in accordance with a predetermined pattern (column 5, lines 57-58, Figures 2 & 3, "34"); and at least one power source, in communication with said first and second conductive layers, for applying an electric potential across said optical layer (column 5, lines 63-65, Figures 2 & 3, "48"), wherein said optical layer has an initial uniform concentration of a dopant, and the application of said electric potential causes a substantially reversible gradient in dopant concentration to be formed, wherein said index of refraction is further a function of said dopant concentration gradient in said optical layer (column 6, lines 3-21).

Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipate by De Vries.

In regard to claim 7, De Vries discloses an optical device (column 7, lines 10-43, Figure 2A, "29"), comprising: a first conductive layer (column 7, lines 16-17, Figure 2A, "24"); an optical layer, arranged over said first conductive layer, said optical layer being transparent to at least a wavelength of interest and having an index of refraction, which is a function of a variable, substantially reversible, dopant concentration in said optical layer (column 7, lines 18-21 & 35-43, Figure 2A, "25"); and a second conductive layer, arranged over a portion of said optical layer, in accordance with a predetermined pattern (column 7, lines 22-23, Figure 2A, "26"); and would inherently comprise at least one power source, in communication with said first and second conductive layers, this being reasonably assumed from the disclosure of an application of a voltage difference

(column 7, lines 40-41). De Vries further discloses wherein said optical layer is operative as a first electrode in a chemical cell (column 7, lines 18-21, Figure 2A, "25", re: "work electrode"), and further including: an ion-storage layer, operative as a second electrode in said chemical cell (column 7, lines 23-24, Figure 2A, "27"); and an electrolyte layer, sandwiched between said optical and ion-storage layers (column 7, lines 14-16, Figure 2A, "23"), wherein at least one layer selected from the group consisting of said optical layer, said ion storage layer, and a combination thereof, has an initial concentration of dopant, such that there exists a dopant concentration difference between said optical layer and said ion storage layer, and the application of an electric field will cause migration of the dopant between said optical and ion storage layers, resulting in a change in the index of refraction of said optical layer (column 7, lines 28-43).

Allowable Subject Matter

Claims 74, 76, 92, 94 and 109 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach a combination of all the claimed features as presented in claim 74: a method of selectively forming and erasing an optical feature, comprising: providing an optical device, which comprises: an optical layer and first and second conductive layers as claimed, specifically wherein a second conductive layer is arranged over said optical layer and an electric potential is applied between said first

and second conductive layers while maintaining a change in light absorption of said wavelength of interest, within said optical layer, at ±10%.

The prior art fails to teach a combination of all the claimed features as presented in claim 76: a tunable optical filter comprising alternate strata of indices of refraction of n_1 and n_2 being substantially different from each other as claimed, specifically wherein at least one tunable index of refraction, selected from the group consisting of n_1, n_2, and both n_1 and n_2 is a function of a variable, substantially reversible, dopant concentration of its associated stratum.

The prior art fails to teach a combination of all the claimed features as presented in claim 92: a method of producing a tunable optical filter comprising arranging alternate strata of indices of refraction of n_1 and n_2 being substantially different from each other as claimed, specifically wherein at least one tunable index of refraction of refraction, selected from the group consisting of n_1, n_2, and both n_1 and n_2 is a function of a variable, substantially reversible, dopant concentration of its associated stratum.

The prior art fails to teach a combination of all the claimed features as presented in claim 94: a tunable optical filter comprising a stack of optical layers as claimed, specifically wherein said optical layers have an index of refraction, which is a function of a variable, substantially reversible, dopant concentration gradient in said optical layers and conductive layers arranged between said optical layers.

The prior art fails to teach a combination of all the claimed features as presented in claim 109: a method of producing a tunable optical filter comprising stacking optical layers as claimed, specifically wherein said optical layers have an index of refraction,

which is a function of a variable, substantially reversible, dopant concentration gradient in said optical layers.

Claims 1, 2, 4, 9-14, 19-28 would be allowable if rewritten or amended to overcome the objections set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach a combination of all the claimed features as presented in claims 1, 2, 9-14 and 19-28: an optical device comprising an optical layer and first and second conductive layers as claimed, specifically comprising electrical switches in communication with a power source, each switch being in communication with different segments of said second conductive layers, for selectively applying power to said segments.

The prior art fails to teach a combination of all the claimed features as presented in claim 4: an optical device comprising an optical layer and first and second conductive layers as claimed, specifically comprising at least two power sources, each in communication with said first conductive layer and different segments of said second conductive layer, for selectively applying power to said different segments of said conductive layer.

Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach a combination of all the claimed features as presented

in claim 8: an optical device as claimed, specifically wherein said electrolyte layer is operative as a wave-guide, and said optical layer is operative as a Grating Wave-guide Coupler.

Response to Arguments

Applicant's arguments with respect to claim 7 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Choi whose telephone number is (571) 272-2324. The examiner can normally be reached on Monday-Friday from about 9:00 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on (571) 272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

W.C.

William Choi
Patent Examiner
Art Unit 2873
October 9, 2006

RICKY MACK
SUPERVISORY PATENT EXAMINER